1648

RAW SEQUENCE LISTING   DATE: 05/15/2001
PATENT APPLICATION: US/09/458,813   TIME: 11:09:23

Input Set : A:\176343-1.app
Output Set: N:\CRF3\05152001\I458813.raw

ENTERED

```
 3 <110> APPLICANT: Murphy, Brian R.
 4        Collins, Peter L.
 5        Durbin, Anna P.
 6        Skiadopoulos, Mario H.
 7        Tao, Tao
 9 <120> TITLE OF INVENTION: USE OF RECOMBINANT LIVE-ATTENUATED PARAINFLUENZA VIRUS
10        (PIV) AS A VECTOR TO PROTECT AGAINST DISEASE CAUSED BY
11        PIV AND RESPIRATORY SYNCYTIAL VIRUS (RSV)
13 <130> FILE REFERENCE: 17634-000330
15 <140> CURRENT APPLICATION NUMBER: 09/458,813
16 <141> CURRENT FILING DATE: 1999-12-10
18 <150> PRIOR APPLICATION NUMBER: 09/083,793
19 <151> PRIOR FILING DATE: 1998-05-22
21 <150> PRIOR APPLICATION NUMBER: 60/047,575
22 <151> PRIOR FILING DATE: 1997-05-23
24 <150> PRIOR APPLICATION NUMBER: 60/059,385
25 <151> PRIOR FILING DATE: 1997-09-19
27 <160> NUMBER OF SEQ ID NOS: 30
29 <170> SOFTWARE: PatentIn Ver. 2.1
31 <210> SEQ ID NO: 1
32 <211> LENGTH: 42
33 <212> TYPE: DNA
34 <213> ORGANISM: Artificial Sequence
36 <220> FEATURE:
37 <223> OTHER INFORMATION: Description of Artificial Sequence: Nucleotide
38        insert to conform inserted sequence to rule of
39        six.
41 <400> SEQUENCE: 1
42 cttaagaata tacaaataag aaaaacttag gattaaagag cg                     42
45 <210> SEQ ID NO: 2
46 <211> LENGTH: 36
47 <212> TYPE: DNA
48 <213> ORGANISM: Artificial Sequence
50 <220> FEATURE:
51 <223> OTHER INFORMATION: Description of Artificial Sequence: Nucleotide
52        insert to conform inserted sequence to rule of
53        six.
55 <400> SEQUENCE: 2
56 gatccaacaa agaaacgaca ccgaacaaac cttaag                           36
59 <210> SEQ ID NO: 3
60 <211> LENGTH: 101
61 <212> TYPE: DNA
62 <213> ORGANISM: Artificial Sequence
64 <220> FEATURE:
65 <223> OTHER INFORMATION: Description of Artificial Sequence: Nucleotide
66        insert to conform inserted sequence to rule of
67        six.
```

RAW SEQUENCE LISTING   DATE: 05/15/2001
PATENT APPLICATION: US/09/458,813   TIME: 11:09:23

Input Set : A:\176343-1.app
Output Set: N:\CRF3\05152001\I458813.raw

```
69  <400> SEQUENCE: 3
70  aggcctaaaa gggaaatata aaaaacttag gagtaaagtt acgcaatcca actctactca 60
71  tataattgag gaaggaccca atagacaaat ccaaattcga g                     101
74  <210> SEQ ID NO: 4
75  <211> LENGTH: 79
76  <212> TYPE: DNA
77  <213> ORGANISM: Artificial Sequence
79  <220> FEATURE:
80  <223> OTHER INFORMATION: Description of Artificial Sequence: Nucleotide
81        insert to conform inserted sequence to rule of
82        six.
84  <400> SEQUENCE: 4
85  tcataattaa ccataatatg catcaatcta tctataatac aagtatatga taagtaatca 60
86  gcaatcagac aataggcct                                              79
89  <210> SEQ ID NO: 5
90  <211> LENGTH: 63
91  <212> TYPE: DNA
92  <213> ORGANISM: Artificial Sequence
94  <220> FEATURE:
95  <223> OTHER INFORMATION: Description of Artificial Sequence: Nucleotide
96        insert to conform inserted sequence to rule of
97        six.
99  <400> SEQUENCE: 5
100 aggaaaaggg aaatataaaa acttaggagt aaagttacgc gtgttaactt cgaagagctc 60
101 cct                                                               63
104 <210> SEQ ID NO: 6
105 <211> LENGTH: 38
106 <212> TYPE: DNA
107 <213> ORGANISM: Artificial Sequence
109 <220> FEATURE:
110 <223> OTHER INFORMATION: Description of Artificial Sequence: Nucleotide
111       insert to conform inserted sequence to rule of
112       six.
114 <400> SEQUENCE: 6
115 aggaaaaggg aacgcgtgtt aacttcgaag agctccct                         38
118 <210> SEQ ID NO: 7
119 <211> LENGTH: 6
120 <212> TYPE: DNA
121 <213> ORGANISM: Artificial Sequence
123 <220> FEATURE:
124 <223> OTHER INFORMATION: Description of Artificial Sequence: Nucleotide
125       insert to conform inserted sequence to rule of
126       six.
128 <400> SEQUENCE: 7
129 ctaaat                                                            6
132 <210> SEQ ID NO: 8
133 <211> LENGTH: 6
134 <212> TYPE: DNA
135 <213> ORGANISM: Artificial Sequence
```

RAW SEQUENCE LISTING   DATE: 05/15/2001
PATENT APPLICATION: US/09/458,813   TIME: 11:09:23

Input Set : A:\176343-1.app
Output Set: N:\CRF3\05152001\I458813.raw

```
137 <220> FEATURE:
138 <223> OTHER INFORMATION: Description of Artificial Sequence: Nucleotide
139       insert to conform inserted sequence to rule of
140       six.
142 <400> SEQUENCE: 8
143 cttaag                                                        6
146 <210> SEQ ID NO: 9
147 <211> LENGTH: 6
148 <212> TYPE: DNA
149 <213> ORGANISM: Artificial Sequence
151 <220> FEATURE:
152 <223> OTHER INFORMATION: Description of Artificial Sequence: Nucleotide
153       insert to conform inserted sequence to rule of
154       six.
156 <400> SEQUENCE: 9
157 tcaatc                                                        6
160 <210> SEQ ID NO: 10
161 <211> LENGTH: 28
162 <212> TYPE: DNA
163 <213> ORGANISM: Artificial Sequence
165 <220> FEATURE:
166 <223> OTHER INFORMATION: Description of Artificial Sequence: Nucleotide
167       insert to conform inserted sequence to rule of
168       six.
170 <400> SEQUENCE: 10
171 acaacgagac cggataaatg ccttctac                                28
174 <210> SEQ ID NO: 11
175 <211> LENGTH: 67
176 <212> TYPE: DNA
177 <213> ORGANISM: Artificial Sequence
179 <220> FEATURE:
180 <223> OTHER INFORMATION: Description of Artificial Sequence: Nucleotide
181       insert to conform inserted sequence to rule of
182       six.
184 <400> SEQUENCE: 11
185 attattgctt aaggtttgtt cggtgtcgtt tctttgttgg atcctatctg cgattggttc 60
186 catcttc                                                       67
189 <210> SEQ ID NO: 12
190 <211> LENGTH: 6
191 <212> TYPE: DNA
192 <213> ORGANISM: Artificial Sequence
194 <220> FEATURE:
195 <223> OTHER INFORMATION: Description of Artificial Sequence: Nucleotide
196       insert to conform inserted sequence to rule of
197       six.
199 <400> SEQUENCE: 12·
200 agacaa                                                        6
203 <210> SEQ ID NO: 13
204 <211> LENGTH: 6
```

RAW SEQUENCE LISTING   DATE: 05/15/2001
PATENT APPLICATION: US/09/458,813   TIME: 11:09:23

Input Set : A:\176343-1.app
Output Set: N:\CRF3\05152001\I458813.raw

```
205 <212> TYPE: DNA
206 <213> ORGANISM: Artificial Sequence
208 <220> FEATURE:
209 <223> OTHER INFORMATION: Description of Artificial Sequence: Nucleotide
210      insert to conform inserted sequence to rule of
211      six.
213 <400> SEQUENCE: 13
214 aggcct                                                        6
217 <210> SEQ ID NO: 14
218 <211> LENGTH: 55
219 <212> TYPE: DNA
220 <213> ORGANISM: Artificial Sequence
222 <220> FEATURE:
223 <223> OTHER INFORMATION: Description of Artificial Sequence: Nucleotide
224      insert to conform inserted sequence to rule of
225      six.
227 <400> SEQUENCE: 14
228 gacaataggc ctaaaaggga aatataaaaa acttaggagt aaagttacgc aatcc      55
231 <210> SEQ ID NO: 15
232 <211> LENGTH: 68
233 <212> TYPE: DNA
234 <213> ORGANISM: Artificial Sequence
236 <220> FEATURE:
237 <223> OTHER INFORMATION: Description of Artificial Sequence: Nucleotide
238      insert to conform inserted sequence to rule of
239      six.
241 <400> SEQUENCE: 15
242 gtagaacgcg tttatccggt ctcgttgtgg tgacatctcg aatttggatt tgtctattgg 60
243 gtccttcc                                                      68
246 <210> SEQ ID NO: 16
247 <211> LENGTH: 68
248 <212> TYPE: DNA
249 <213> ORGANISM: Artificial Sequence
251 <220> FEATURE:
252 <223> OTHER INFORMATION: Description of Artificial Sequence: Nucleotide
253      insert to conform inserted sequence to rule of
254      six.
256 <400> SEQUENCE: 16
257 gtagaacgcg tttatccggt ctcgttgtgg tgacatctcg aatttggatt tgtctattgg 60
258 gtccttcc                                                      68
261 <210> SEQ ID NO: 17
262 <211> LENGTH: 28
263 <212> TYPE: DNA
264 <213> ORGANISM: Artificial Sequence
266 <220> FEATURE:
267 <223> OTHER INFORMATION: Description of Artificial Sequence: Nucleotide
268      insert to conform inserted sequence to rule of
269      six.
271 <400> SEQUENCE: 17
```

RAW SEQUENCE LISTING   DATE: 05/15/2001
PATENT APPLICATION: US/09/458,813   TIME: 11:09:23

Input Set : A:\176343-1.app
Output Set: N:\CRF3\05152001\I458813.raw

```
272 ccatgtaatt gaatccccca acactagc                              28
275 <210> SEQ ID NO: 18
276 <211> LENGTH: 28
277 <212> TYPE: DNA
278 <213> ORGANISM: Artificial Sequence
280 <220> FEATURE:
281 <223> OTHER INFORMATION: Description of Artificial Sequence: Nucleotide
282       insert to conform inserted sequence to rule of
283       six.
285 <400> SEQUENCE: 18
286 cggataaacg cgttctacaa agataacc                              28
289 <210> SEQ ID NO: 19
290 <211> LENGTH: 28
291 <212> TYPE: DNA
292 <213> ORGANISM: Artificial Sequence
294 <220> FEATURE:
295 <223> OTHER INFORMATION: Description of Artificial Sequence: Nucleotide
296       insert to conform inserted sequence to rule of
297       six.
299 <400> SEQUENCE: 19
300 cggataaacg cgttctacaa agataacc                              28
303 <210> SEQ ID NO: 20
304 <211> LENGTH: 23
305 <212> TYPE: DNA
306 <213> ORGANISM: Artificial Sequence
308 <220> FEATURE:
309 <223> OTHER INFORMATION: Description of Artificial Sequence: Nucleotide
310       insert to conform inserted sequence to rule of
311       six.
313 <400> SEQUENCE: 20
314 gggccatgga agattacagc aat                                   23
317 <210> SEQ ID NO: 21
318 <211> LENGTH: 25
319 <212> TYPE: DNA
320 <213> ORGANISM: Artificial Sequence
322 <220> FEATURE:
323 <223> OTHER INFORMATION: Description of Artificial Sequence: Nucleotide
324       insert to conform inserted sequence to rule of
325       six.
327 <400> SEQUENCE: 21
328 caataagctt aaagcattag ttccc                                 25
331 <210> SEQ ID NO: 22
332 <211> LENGTH: 31
333 <212> TYPE: DNA
334 <213> ORGANISM: Artificial Sequence
336 <220> FEATURE:
337 <223> OTHER INFORMATION: Description of Artificial Sequence: Nucleotide
338       insert to conform inserted sequence to rule of
339       six.
```

VERIFICATION SUMMARY
PATENT APPLICATION: **US/09/458,813**

DATE: 05/15/2001
TIME: 11:09:24

Input Set : **A:\176343-1.app**
Output Set: **N:\CRF3\05152001\I458813.raw**